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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,372	12/21/2001	Jeffrey A. Trogolo	A-035 US	5146

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AGION TECHNOLOGIES
60 Audubon Road
Wakefield, MA 01880

EXAMINER

CHOI, FRANK I

ART UNIT PAPER NUMBER

1616

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,372

Applicant(s)

TROGOLO ET AL.

Examiner

Frank I Choi

Art Unit

1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 38-45 is/are pending in the application.
- 4a) Of the above claim(s) 12,41 and 43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11,13-23,38-40,42,44 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13-23, 38-40, 42, 44, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagiwara et al. (US Pat. 4,775,585) in view of Konagaya et al. (US Pat. 6,013,275), Niira et al. (US Pat. 5,556,699) and Wada et al. (US Pat. 3,981,970).

Hagiwara et al. teach the incorporation of antibacterial silver zeolite particles in polymers such as ABS resins (See entire references, especially, Column 4, lines 44-58).

Konagaya et al. teach that the antibacterial activity of silver zeolite can be increased by incorporating the same in a hydrophilic substance which is an organic compound or a high molecular compound containing at least one of a hydroxyl group, amino group, amide group, carboxyl group or alkali metal salts thereof, such as homopolymers or copolymers of polyacrylic acid, homopolymers of copolymers of polymethacrylic acid or 2-hydroxyethyl methacrylate and that the same can be incorporated into a suitable thermoplastic or thermosetting resin (Column 3, lines 16-26, Column 5, lines 2-13, Column 8, lines 48-51, Column 9, lines 4-6, Column 10, lines 34-36, Column 13, lines 1-14).

Niira et al. teach that antibiotic zeolites containing silver which further incorporate ammonium ions effectively prevent discoloration of resins into which the antibiotic zeolites are incorporated (Column 2, lines 11-23).

Wada et al. teach that the exchange of cations in zeolite is a equilibrium reaction (Column 1, lines 1-48). An exchange reaction process is taught whereby silver ions are introduced to sodium containing zeolite with the result being silver zeolite plus any excess silver ion and sodium ion (Column 3, lines 5-11). An exchange reaction process is taught in which nitric acid is introduced into silver zeolite with the result being hydrogen zeolite, silver nitrate and any excess nitric acid (Column 3, lines 12-15).

The difference between the prior art and the claimed invention is that the prior art does not expressly disclose a silver zeolite which is encapsulated with an acrylic resin, especially poly (hydroxyethyl methacrylate) having an average diameter of about 2000 microns or less, optionally further comprising an ammonium salt or sodium nitrate or optionally further incorporated into an addition polymer, especially ABS. However, the prior art amply suggests the same are antibacterial silver zeolites which are incorporated into polymers such as ABS, the combination antibacterial silver zeolites and hydrophilic polymers, such as acrylics, including hydroxyethyl methacrylic, the use of ammonium ions and the exchange of silver with sodium ions and nitric acid are known in the art. As such, it would have been well within the skill of and one of ordinary skill in the art would have been motivated to modify the prior art as above with the expectation that the combination of antibacterial silver zeolites and hydrophilic polymers such as hydroxyethyl methacrylic polymers would result in increased antibacterial activity, that addition of ammonium ions would inhibit discoloration of polymer resins, such as ABS, in which the antibacterial zeolite/hydrophilic polymer is incorporated and that the addition of a salt of sodium ion and nitric acid, i.e. sodium nitrate, would drive the silver ions out of the zeolite thereby increasing the amount of free silver ions available for antibacterial effect.

Examiner has duly considered Applicant's arguments but deems them unpersuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 231 USPQ 375 (Fed. Cir. 1986). Further, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 208 USPQ 871 (CCPA 1981).

Applicant argues that the size of the particle is critical, however, Applicant has not provided any evidence of this criticality. Arguments of counsel are not sufficient to show this criticality. See *In re Schulze*, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 43 USPQ2d 1362 (Fed. Cir. 1997). The claim recites an average diameter of about 2000 microns or less which means that not only can individual particles be greater than 2000 microns so long as the average diameter is about 2000 microns or less but the average diameter itself can be greater than 2000 microns by action of the term "about" which is not defined by the claims. In any case, the prior art discloses average particle sizes falling within the claimed range (See Hagiwara et al., Table I).

Applicant argues that neither Hagiwara et al. nor Konagaya et al. suggest one to encapsulate an antimicrobial active agent in a polymer and use the same to be added to other polymer compositions. However, Konagaya et al. specifically discloses that the incorporation of the antimicrobial composition into suitable thermoplastic or thermosetting resins (Konagaya et al., Column 13, lines 1-14).

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Applicant argues that one would not envision attempting to incorporate nitric acid or other caustic materials into a polymer. As indicated above arguments of counsel are not sufficient to overcome the rejection herein. Further, as indicated above, there is no requirement that the features of a secondary reference be bodily incorporated into the structure of the primary reference. The prior teaches that exchange of ions is a equilibrium reaction, as such, addition of sodium ions will result in the replacement of silver ions with sodium ions. The prior art also teaches that nitric acid will result in the exchange of silver also. As such, one of ordinary skill in the art would expect that sodium nitrate would also result in exchange of silver ions from the zeolite.

Therefore, the claimed invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention has been collectively taught by the combined teachings of the references.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

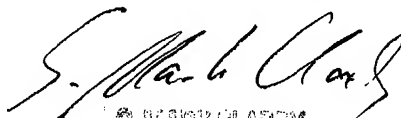
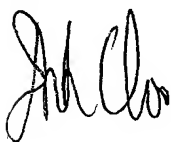
A facsimile center has been established in Technology Center 1600. The hours of operation are Monday through Friday, 8:45 AM to 4:45 PM. The telecopier number for accessing the facsimile machine is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Choi whose telephone number is (703) 308-0067. Examiner maintains a flexible schedule. However, Examiner may generally be reached Monday-Friday, 8:00 am – 5:30 pm (EST), except the first Friday of the each biweek which is Examiner's normally scheduled day off.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. Thurman Page, can be reached on (703) 308-2927. Additionally, Technology Center 1600's Receptionist and Customer Service can be reached at (703) 308-1235 and (703) 308-0198, respectively.

FIC

January 12, 2004



S. MARK CLARDY
PATENT EXAMINER
GROUP 1200
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